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On the Functions of a System of Vocational Qualifications

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INTRODUCTION

The idea that there is something deeply flawed about England's system of vocational qualifications is neither new nor novel. Determining exactly what that something is is another matter. Some commentators illustrate the difficulties by pointing to the system's perceived detrimental effects: economic failings, skills shortages, problems of social justice, and so on. Others are concerned more with identifying structural problems: inappropriate funding arrangements, organisational incoherence, systemic procedural anomalies, excessive state interference, etc. Here I plan to take a somewhat different tack: I want simply to consider present arrangements in light of the *primary functions* a vocational qualification should fulfil. The thought is that if present arrangements can be shown to be antithetical to one or more such functions then this might indicate the root cause of some of the difficulties which beset vocational education and thus better indicate where changes need to be made. I stress 'primary' functions because it has become commonplace of late to characterise as 'purposes' or 'functions' almost anything that might conceivably be implicated in or affected by the shape a qualification system takes. Thus a recent CEDEFOP publication under the heading 'The purposes and functions of qualifications' lists such things as 'enacting reform in education and training', 'shifting control from one agency to another' and 'protecting consumers' (CEDEFOP, Coles et al., 2010 table 7). Now it does no harm to be reminded that a good deal hangs on how a qualification system is conceived, and it is true that the designers of a qualification must always have an eye to the extraneous purposes to which a qualification might be put. But our acknowledging that a qualification might be regarded as having such purposes, or perceived as serving or failing to serve particular interests, or recognised as having certain wider social, political or educational

implications, should not distract us from the fact that a vocational qualification by virtue of being a *vocational* qualification *must* fulfil certain generally acknowledged and immutable functions with respect to the individual worker and the work they are required to do.

I am prompted in this line of thinking by experience of circumstances that I suspect may be one of the best kept secrets in vocational education. It is a fact – as far as I know one never fully made public – that throughout the 1990s, at a time of enormous upheaval in the organisation of skills in many sectors of industry, many of the UK's major companies found it necessary to abandon the UK's system of National and Scottish Vocational Qualifications (N/SVQs) because it was judged not to fulfil the functions they expected and required of a vocational qualification system. They opted instead for a system that was conceptually and methodologically at odds with the N/SVQ. As a result, thousands of highly skilled workers in companies throughout the length and breadth of the UK today hold qualifications that were designed purposefully to counter the shortcomings of the officially sanctioned qualifications framework. It will be useful here, by way of a preliminary to what follows, to consider some of the background to these events.

It is widely known that during the 1990s the UK's engineering skills base underwent a quite radical transformation. Occupations such as electrician, mechanical fitter, instrumentation technician, welder, and so on, had for the best part of a hundred years been strictly delineated, the boundaries between such occupations often vigorously defended by trade unions keen to protect the interests of their members. By the late 1980s the unfeasibility of this state of affairs was becoming increasingly apparent. A task that in Germany or Japan could be carried out by a single 'multi-skilled' technician would, in the UK, typically require the attendance of a succession of variously specialised workers. Inefficiency and delay were compounded by problems of communication and unclear divisions of responsibility. Advances in technology placed still further stress on the old occupational divisions: it was not just that workers lacked the skills to cope with, say, programmable logic or fibre optic technology – technologies then being widely introduced across industry – there was also the question of *which* occupation should assimilate any given set of new skills. These, then, were the kind of challenges facing engineering in the 1990s. Nonetheless, by the end of this period the skills of virtually an entire generation of engineering and engineering maintenance workers across almost every sector of British industry had

effectively been transformed: extended in varying degrees beyond the traditional skills categories in which they had originally been trained.

The fact that this transformation occurred is a matter of common knowledge, certainly to anyone familiar with skills provision in the engineering and manufacturing sectors. Some have characterised the ‘flexibility’ which resulted from this ‘rapid destruction and reconstruction of skills’ (Harvey, 1990, p. 150) as a feature of ‘postmodernity’. What is less widely known is how this was achieved and the role played in this transformation by one particular training provider.

The National College of Electrical and Mechanical Engineering was the technical training arm of a succession of variously merged engineering trade unions. It had its origins in the training facilities of the Electrical, Electronic, Telecommunications and Plumbing Trades Union (EETPU), facilities that were set up in the 1980s with a view to providing skills in electronics to the Union’s electrician members. The College offered a range of distance learning, on-site and residential courses carrying specially designed City & Guilds certification with the costs of the courses usually being met by employers. Union members who were out of work attended courses free of charge. Ultimately it turned out that the supposed demand for skills in electronics had been misperceived: increasing miniaturization and advances in surface-mount technology meant that component level fault finding was soon no longer practicable – maintenance technicians would simply replace entire circuit boards. However, by 1990, just as the demand for training in electronics began to decline, a different and more urgent training need arose: ‘up-skilling’ and ‘multi-skilling’ within and across the traditional occupational boundaries.

Training of this kind was a far more controversial and politically sensitive proposition, partly because of the serious health and safety implications, partly because it raised the prospect of the Union training workers who were members of *other* unions, and partly because it was far from clear exactly what *kind* of training and assessment would be suitable and sufficient for these needs. The merging of the EETPU with the Amalgamated Engineering Union in 1992 removed some of the political obstacles although the Union remained wary of being seen to train one group of its members in the skills of another – one reason why the extent of the National College’s involvement was never publicly acknowledged. My own role, as the Union’s and College’s

National Advisor on Technical Training, was to liaise with companies wishing to undergo training and mediate between senior management, local union officials and worker representatives in order to agree a programme of training and accreditation acceptable to all sides. Invariably, everyone involved had two main priorities. First, training needed to be such as to ensure that those taking on new skills would be safe – the very nature of the systems to be worked on meant that there was an inherent and substantial risk of injuries or fatalities. Second, any training that was provided should lead to a nationally recognised qualification.

My initial meetings with companies usually began with them expressing an interest in training leading to Level 3 N/SVQ. On the face of it, the N/SVQ had much to offer: a nationally recognised qualification which, above all, was focused on competence. Not only was the implicit practicality appealing but it appeared to sit well with the legal requirements for competence in areas such as electrical work – something that was invariably at the forefront of people's minds, particularly senior engineering managers. The N/SVQ also held out the possibility of attracting funding, often an important factor for smaller companies and engineering departments on tight budgets. For many companies, then, the N/SVQ seemed at first sight well suited to their needs. However, as discussions progressed invariably it would become clear that the N/SVQ route not only posed insurmountable practical difficulties – not least, the time it would take for the workforce to become qualified – but that it simply did not provide what all the various stakeholders agreed they were looking for, that is, it simply did not fulfill the functions they required of qualification system.

Initially, there was little option for most companies but to put their skills development on hold. Some smaller, usually non-union companies tried using local training providers, with generally little success. Here and there a company might arrange day release for one or two employees to attend the local FE College to embark on what was, in effect, the off-the-job component of, for them, a second apprenticeship. But most were left with no obvious way out of the difficulty. By way of providing a solution I set about putting together a system that I thought *would* fulfill the functions employers and employees required. It was clear that this was not simply a matter of using a different kind of assessment. Indeed, it involved three distinct elements: first, a package of off-the-job provision that was designed to be simultaneously 'task focused' and 'understanding

oriented'; second, a scheme for guiding the consolidation of newly acquired skills in the workplace; and third, a scheme of assessment/certification, endorsed by the Union and designed specifically to help employers meet the legal requirements for competence. The very first module developed was in electrical maintenance because this happened to be my own area of expertise; others quickly followed as colleagues with expertise in other fields used this as a template to build a range of modules across the various engineering disciplines.

The upshot was that we were now able to offer companies a choice: either the N/SVQ *or* the National College Certificate. When the difference between the two systems was explained employers and employees alike invariably chose the National College Certificate as being best suited to their needs. In company after company the various stakeholders, employers, employees and trade unions reps alike, rejected the N/SVQ option. As a consequence, by the end of the decade thousands of skilled engineering personnel in companies throughout the UK had successfully taken on new skills – and done so safely – through a system of qualifications that was diametrically opposed in just about every respect to the N/SVQ.

I mention these events not because I wish to generalise or draw conclusions from them – it is not my intention here to use this as a case study. Rather, in what follows I will try to demonstrate that the most serious problems which beset the UK's vocational qualification system are of a *conceptual* nature. But by setting these conceptual difficulties against the backdrop of these events I hope to bring into sharp relief the considerable practical implications of these deep seated theoretical difficulties. In so doing I will try to show that current arrangements are antithetical to fulfilling what are probably the three most basic and most essential functions of a vocational qualification.

A QUESTION OF KNOWLEDGE

Advocates of the N/SVQ system often make a virtue of the fact that the system is solely about assessment and is not concerned with education or training provision. Yet this avowed disregard for the processes by which people come by their capabilities does nothing to lessen the obligation

that designers of a qualification have to ensure that it provides a suitable and sufficient indication of the kind, level and extent of knowledge with which it is intended to be associated. By way of a provisional definition let it suffice for the moment to say that by ‘knowledge’ I mean simply any and all of skills, understandings, capabilities, etc. required for a given occupational role. In short, a qualification should be meaningful to its users by virtue of signalling its intended epistemic focus. We might say, then, that the first function of a *vocational* qualification should be something like this:

(F1) A qualification should provide an epistemological focus appropriate to the substantive knowledge requirements of the occupation or role.

The matter is essentially one of validity, a matter of ensuring that the knowledge indicated or picked out by a qualification coincides with that required for a given occupational role.

Now identifying the *tasks* associated with a particular role is a relatively straightforward matter. For companies aiming to develop multi-skilling the first problem likely to be presented by the N/SVQ system is that of a mismatch between the tasks identified for a given role and those detailed in the qualification’s specification. The following (I refer here to a recent version) is typical of the kind of list that might be found in a Level 3 N/SVQ:

Unit 25 Maintaining electrical equipment within an engineered system.

Replace a range of electrical components to include **eight** of the following:

- cables and connectors
- contactors
- relay components
- transformers
- overload protection devices
- switches and sensors
- solenoids
- capacitors
- rectifiers
- encoders or resolvers
- invertors and servo controllers
- circuit boards
- lighting fixtures
- batteries
- locking and retaining devices (such as cable ties, clips, proprietary fasteners)

(City & Guilds, 2004, p. 202)

The first difficulty then, is that the envisaged role might entail *some* of these tasks but not a sufficient number to make the unit a feasible qualification option. In fact a role could involve a group of tasks which turn out to be scattered across a range of different units. Of course we could explain this lack of fit by conceding that the units are intended primarily for those undertaking a full apprenticeship – not those taking on flexibility skills. So, *prima facie* the mismatch appears to be a merely contingent difficulty, one that in principle at least could be open to remedy. If this is the case then administrative issues aside, there should be no reason why credit could not be given for any grouping of tasks, even just one of the tasks on this list if need be. Yet for reasons which will soon become apparent, this is unlikely ever to happen. Indeed we might already find it odd that an approach focused expressly on occupational standards, on what a person can do, would seem to be incapable of acknowledging specific skills unless those skills are incorporated into a much wider specification.

Some of the lists included in an N/SVQ specification are far from specific, potentially encompassing the entire gamut of activities that might be carried out by a person working in a given discipline. The following list accompanies the one above in the same unit:

Carry out maintenance activities on **six** of the following types of electrical equipment:

- single-phase power supplies
- three-phase power supplies
- direct current power supplies
- motors and starters
- switchgear and distribution panels
- control systems and components
- electrical plant
- wiring enclosures
- luminaires
- other specific electrical equipment

(City & Guilds, 2004, p. 201)

The main thing here is that there are an enormous range of possible activities that might be carried out in relation to each of these equipment ‘types’. Indeed, if the term ‘maintenance activities’ is to be understood as meaning anything more than the most trivial of activities, then it is not so much that someone with evidence of work in six of these areas would thereby partially indicate their competence but, rather, that we could only expect such a range of activities to be carried out by

someone who *is* competent. This by no means lends credence to the N/SVQ as a form of assessment. The point here is that the process would seem to be less one of identifying the *kind of knowledge* that is needed and more about indicating a state of affairs in which it might be assumed that a person would have that knowledge – whatever that knowledge happens to be. We can thus see why there would be difficulties creating a specification for a very small or specific group of tasks on the N/SVQ model, why acknowledging competence in just one task would probably prove difficult: the kind of knowledge that is substantively at issue is *implied* by a comprehensive grouping of tasks in a way that it is not when the number of tasks is reduced. And this brings us to what would seem to be the nub of the issue.

In discussions with companies about skills provision, having established the task or tasks in which workers were to be trained, attention would turn to the question of what they would need to *know*. All concerned would be acutely aware that it would not be sufficient simply to train a person to perform the task: if they were to be safe, and be able to carry out the task in different circumstances, then they needed to *understand* what they were doing. It is not without significance that only rarely was someone able to come close to articulating in any detail what this might mean. The fallback position of the more circumspect was that whatever this understanding was it could only be provided by the kind of education traditionally received by those skilled in that area of work: typically two or three years formal learning at a Further Education College leading to City & Guilds certification. At the same time it was recognised that the traditional curriculum did not seem at all pertinent: much of the content was simply irrelevant to the tasks at issue. For someone to be able to remove and replace a motor, a sensor or a coupling it did not seem necessary for them to know about, for example, matters of design. Nevertheless, invariably the consensus was that what was needed was some kind of ‘theory’ to support the ‘practice’.

The distinction that is made between theory and practice can be traced back as far as the ancient Greeks and has long been prevalent in thinking about vocational education. If someone is asked to describe exactly what a person would need in order to fulfil a given occupational role they almost invariably set about producing two lists: a list of the things they would need to be able to *do*, and a list of the things they would need to *know*. This way of thinking is all too evident in the N/SVQ

with specifications divided between ‘competencies’, ‘performance criteria’, ‘activities’ and the like on the one hand, and ‘underpinning knowledge’ or ‘knowledge statements’ on the other.

Vocational education has long been plagued by the opposition that is made of theory and practice. Nursing education is a case in point, with commentators variously agonising over the proper role of theory and practice (see Lum, 2007) and violent opposition arising over the question of the extent to which provision should take place in the university lecture theatre or on the hospital ward. It might be said that nurse education has a particular fixation with the theory-practice distinction, especially the notion of a ‘theory-practice gap’ which has been ‘an issue of concern for many years’ (Hewison and Wildman, 1996, p. 754).

The root of the difficulty is that whilst some will see theory as the very fountainhead of intelligent action and regard any performance unsupported by theoretical knowledge as nothing more than brute behaviour, others will insist that the main priority of a vocational preparation should be the facility to act, to do the job, and that for theory to be elevated to anything more than handmaiden to practice is to invite curricular irrelevance. Obviously, with the shift towards competence-based education and training (CBET) the pendulum swung quite decidedly towards the latter position; indeed, CBET can be regarded as precisely a reaction *against* the previous preoccupation with ‘theory’. But there is still an occasional shift in the opposite direction particularly when status is at the forefront of concerns, as with nursing – now a degree level occupation – although here too there is an all too expected reaction in the form of complaints that these arrangements are ‘just too academic’ (Smyth, 2011, p. 4). Indeed, there is a distinctively British variant of the theory-practice distinction, one which is almost impossible to disentangle from snobberies of social class: white collar as against blue collar, professional as against vocational, education as against training, and so on. But hostility towards the theoretical certainly appears to have become *de rigueur* of late: the Deputy Director of the Institute of Education is reported as saying that a new Masters qualification for teachers should be ‘practical’ so as to avoid ‘filling their heads full of educational theory’ (cited in Lipsett, 2008).

In short, the entire subject of the relationship between theory and practice is fraught with philosophical confusion and bound up with all manner of social snobberies. Certainly the prospect

of a ‘golden mean’, a perfect balance of theoretical and practical knowledge can be shown to be illusory (see Lum, 2007). But what is more to the point is that the very idea that there are two fundamentally different kinds of knowledge simply does not hold up to scrutiny. We can certainly acknowledge that the theory-practice distinction is meaningful as regards what I have referred to (*ibid.*) as the antecedent and consequent conditions of knowledge, that is, we can distinguish between theoretically and practically oriented provision, and we can similarly acknowledge differences in how a person’s knowledge *manifests* itself, such as when we say of a person that they know the theory but not the practice of something, or vice versa. We speak of them ‘knowing that’ or ‘knowing how’ on the basis of *how* their knowledge is made apparent to us. And our use of this distinction can help us communicate the difference between them knowing one thing and knowing another, such as the difference between knowing facts about cycling and knowing how to ride a bike. The difficulty comes when it is assumed that we can give an account of what the skilled performer knows by describing these consequent conditions of knowledge. By way of illustration consider the following not uncommon situation:

A factory production line is in full swing when suddenly the machines grind to a halt. Alarm bells ring and warning lights flash; a maintenance technician arrives and makes his way to one of a hundred electrical control panels each interconnected perhaps with several miles of cabling. He opens the control panel, takes a screwdriver from his pocket and makes a small adjustment to just one of several hundred components. Closing the control panel he presses some buttons and the production line bursts into life. The question is, how is it possible to account for what the technician knows? His performance did not require the conscious manipulation of propositions or facts – and neither did it require any particular physical dexterity.

(Lum, 2009, p. 56)

What this ‘disappearing knowledge trick’ (Lum, 2012b, p. 25) demonstrates is that it is simply not possible to indicate what the technician knows by detailing the consequent conditions of knowledge. Any account couched in these terms will invariably miss something – and in this case it misses everything. This is obviously a kind of expertise that is much valued and would require no small amount of education and experience and yet if we were restricted to giving an account of it in terms of the theory actually used or the task actually performed then the knowledge requirements of the role appear negligible. Of course what is missing from such an account are all those various facets of judgement, understanding, interpretation – in short, the wherewithal to make sense of a sphere of involvements that constitutes a person’s acting in an occupational

capacity. I have suggested that occupational knowledge should more properly be understood as being primarily about

... gaining certain fundamental understandings and abilities relating to how that particular world works, how to cope in it and find our way around it – rather than necessarily being able to exhibit the secondary and derivative behavioural or propositional manifestations of those understandings. In becoming capable we learn to adopt a particular stance, a certain interested and purposeful viewpoint which in turn structures our consciousness and our experience. We thus come to be equipped with a certain kind of ‘readiness’; we are able to see things *as* certain things, we are able to interpret what we experience and extrapolate from it in a way which is appropriate to the world in which we wish to operate.

(Lum, 2009, p. 113)

So where do N/SVQs stand in relation to this? In early versions of the N/SVQ it tended to be assumed that successful performance necessarily entailed a person having all or virtually all the requisite knowledge and understanding. Statements relating to ‘underpinning knowledge’ were minimal and largely confined to matters of health and safety – obviously a concession to the worry that whatever was missing might put lives at risk. Exactly this sort of ‘knowledge statement’ is still to be found today in N/SVQ Units:

You must have knowledge and understanding of:

- 1 The health and safety requirements of the area in which the maintenance activity is to take place, and the responsibility these requirements place on you
- 2 The isolation and lock-off procedure or permit-to-work procedure that applies to the system

(City & Guilds, 2004, p. 202)

The difficulty with this – and the reason why many companies were extremely nervous about the N/SVQ approach – is that safe working on electrical systems is not simply a matter of knowing and complying with ‘requirements’ and ‘procedures’. It is also about having an understanding of the system. Statements such as these are still to be found in S/NVQ specifications but – no doubt as a response to accusations that such specifications neglect knowledge and understanding (see Hyland, 1994) – today we find far more, and far more wide-ranging ‘knowledge statements’ including statements such as the following:

- 8 The basic principles of how the system functions, its operation sequence, the working purpose of individual units/components, and how they interact
(*ibid.*)

At first sight this appears to be getting closer to outlining the kind of understanding at issue. Epistemologically speaking, a statement such as this is pregnant with possibilities and could be interpreted as indicating that the candidate will need to have a quite rich and sophisticated understanding of a substantial range of complex systems with all their various permutations. However, it turns out that the possibilities for interpreting such a statement are profoundly delimited by the N/SVQ's edicts on assessment methodology:

Where the candidate's knowledge and understanding ... is not apparent from performance evidence, it must be assessed by other means and be supported by suitable evidence. Knowledge and understanding can be demonstrated in a number of different ways, but it is suggested that the most appropriate methods for this qualification are oral questioning and practical demonstrations.
(*ibid*, p. 16)

So the knowledge and understanding at issue must be such as to be apparent either from the performance or from what the candidate subsequently says or does. Now the effect of this – and it is important to recognise that this is *not* a point about assessment – is that the specification requires knowledge and understanding to be *conceived* expressly in terms of their consequent conditions, that is, in terms of what a candidate might do or say. The interpretation of such statements is still further delimited by virtue of the fact that the 'evidence' pertinent to any given 'knowledge statement' will be limited to a comparatively minor place in the evidential scheme of things – the main thrust of evidence being focused on the performance of the tasks specified.

The difficulty with characterizing this diminishment of knowledge and understanding as 'behaviouristic' – for this is how the bulk of criticism positioned against the N/SVQ has had it – is that it turns the complaint into an appeal for the pendulum to swing back in the opposite direction, from one consequent condition of knowledge to the other. We might say that this is the standoff that currently prevails in vocational education. Seen thus, curriculum and qualification designers need only to be aware of 'the perils of a preparation either 'too theoretical' or 'too practical' as they set out to steer a course between irrelevance and ignorance, like ancient navigators venturing the waters between Scylla and Charybdis' (Lum, 2007, p. 142).

Yet it is possible to conceive of vocational knowledge and understanding without having to resort to their consequent conditions. The knowledge statement cited above *could* be interpreted in its fullest sense if the delimiting effects of N/SVQ methodology were avoided. It is entirely possible to focus a qualification system on tasks in such a way as to foster pedagogical strategies to develop the requisite understanding – an understanding not required to be cashed out in terms of the ‘theoretical’ or the ‘practical’, i.e. in terms of specific propositional or behavioural manifestations. And this was in part what distinguished the National College Certificate from the N/SVQ and one of the reasons why employers and employees opted for the former in preference to the latter. Intuitively they recognised that the N/SVQ system simply did not fulfill the function of providing a suitable and sufficient focus on the kinds of understanding required to do the job properly and prevent people’s lives being put at risk.

In her report on vocational education Alison Wolf (2011) rightly notes that some ‘high quality apprenticeships’ are ‘over-subscribed to a far higher degree than any Oxbridge or Russell Group university course’ (p. 21). In fact throughout her report she repeatedly refers to ‘high quality’ apprenticeships, courses, institutions, provision and vocational teaching. Yet nowhere in the report is it made clear what might be meant by ‘high quality’. My suggestion is that what distinguishes these exemplary instances of provision is not that they attend to tasks in some unique or special way, neither are they distinctive by virtue of placing some extra special emphasis on theory. Rather, I want to suggest that the thing that distinguishes them is that they take steps to cultivate precisely the kinds of understanding identified here. That they succeed in this is all the more remarkable due to the fact that they achieve it *in spite of* rather than because of a system of vocational qualifications that seems incapable of providing an epistemological focus appropriate to substantive occupational requirements.

A QUESTION OF ASSESSMENT

It is well known that the shift towards competence-based assessment is part of a wider ‘paradigm shift’ (Gipps, 1995, p. 1) in the field of assessment, a shift away from assessment designed for purposes of selection, comparison and prediction towards forms of assessment intended to

determine what a person actually knows, what they can do, what they have achieved. It is also well known that this shift has aroused concerns as to whether the new assessment culture of ‘competences’ and ‘outcomes’ is such as can gain the measure of the capabilities substantively at issue. In other words there are concerns that these arrangements might fail to fulfil the following function:

(F2) A qualification should provide a suitable and sufficient indication of a person’s capabilities with respect to a given occupational role.

The thrust of these concerns, to the extent that they have been given any clear identification, is that the new strategies are ‘*intrinsically* behaviouristic’ (Hyland, 1997, p. 492, original emphasis) and hence neglectful of knowledge and understanding. We have seen how in the context of the curriculum these anxieties appeared as yet another manifestation of the familiar opposition between theory and practice, as merely an attempt to swing the pendulum back in the direction of theory, away from practice. This alone is perhaps sufficient to explain why the considerable weight of criticism positioned against the competence approach has done little to prevent it spreading throughout education, even downwards into schools and upwards into higher education. Here, however, in the context of assessment, the charge of behaviourism would seem to centre on the supposed ontological differentiation of ‘outward behaviour’ as against ‘inner mental states’. We can thus characterise the ‘basic worry’ that lies at the heart of the critical case against the N/SVQ as arising from an intuition that it is possible to have knowledge of a person’s capabilities which *belies* what might otherwise be indicated by their behaviour. This would seem to indicate yet another reason why the accusation of behaviourism has had little impact on the spread of competence strategies. For the charge of behaviourism appears incoherent in the context of *assessment* due to the obvious fact that *all* forms of assessment must be based on behaviour of some kind or other.

At this juncture it would be useful to remind ourselves of what it is that supposedly distinguishes current assessment strategies from those which went before. We can depict the previous culture in relatively straightforward terms. In brief, if we wished to test a certain area of knowledge we might begin with a ‘construct’, a concept of what we think should be included in a certain sphere

of knowledge which, in turn, would give rise to a ‘universe’ of possible test items from which we would select items with a view to ‘sampling’ the candidate’s knowledge. The use of unseen examinations would limit the possibility of teaching to the test and differentiation between candidates could be enhanced by, for example, rejecting test items which candidates consistently answered correctly. Of course this kind of process is by no means limited to written examinations for exactly the same approach can be employed with the most practical of tests.

Somewhat paradoxically the new culture is rather more difficult to depict precisely because, on the face it, it is so deceptively straightforward, the task being simply one of determining whether the candidate can ‘do x ’, where x is some requisite competence or outcome. Here, teaching to the test is a virtue. And ordinarily at least there is no requirement or mechanism for differentiating between candidates. It is simply a matter of whether a candidate can or cannot ‘do x ’.

Now I want to suggest that this apparent simplicity conceals a quite critical ambiguity which hitherto seems to have escaped notice. Indeed, I want to suggest that there are in fact *two conceptually distinct senses* in which a person might be judged to be able to ‘do x ’ or judged to ‘know x ’. It turns out that our use of terms such as ‘competence-based’, ‘outcomes-based’ or ‘criterion-referenced’ actually serve to evade the crucial issue of exactly what *kind* of assessment we are using. The matter can be illustrated with what I have called the Right/Wrong Scenario:

Imagine that we wished to assess a person’s knowledge of, say, current affairs by means of oral questioning. And suppose that this person was able to answer our questions correctly but with each and every answer betrayed some either quite subtle or perhaps quite radical misunderstanding. Perhaps on being asked who the current British Prime Minister is the response comes “David Cameron – leader of the Liberal Democrats”, or “David Cameron – the Welshman who lives at N^o 9 Downing Street”, or “David Cameron – a lizard-like alien from Mars who lives in the sewers of New York”. Let us say, then, that with each and every ‘correct’ answer comes countervailing evidence which suggests that the respondent does not fully understand the matter in hand ... The question here is whether and in what sense there could be said to be a correct or appropriate interpretation of such a response.

(Lum, 2012a, p. 596)

In short, the matter hinges on the *kind* of assessment we choose to employ and there are, I have suggested, two possibilities. If this scenario were to arise in the context of, say, a canvasser carrying out a door-to-door survey of voters, we could imagine such responses being deemed

sufficient to merit a tick in the relevant box. On the other hand, were the very same responses to be made by an applicant being interviewed for an internship at Westminster there is probably little doubt that a negative judgement would result. That such different outcomes could result from the *same* questions being asked, the *same* responses being sought and the *same* responses being received can only be justified by acknowledging what we have here are two fundamentally different forms of assessment – what I have dubbed ‘prescriptive’ and ‘expansive’ modes of assessment (*ibid.*).

An assessor operating in the prescriptive mode focuses solely on the prescribed outcome with judgement strictly confined to *judgements of identity*, that is, the assessor is concerned only with establishing whether a performance does or does not correspond with that specified *regardless of any other consideration*. In contrast, an assessor operating in the expansive mode employs what I have called *judgements of significance* which require the assessor to take account of and weigh the potential significance of *any* available evidence that might be judged to have a bearing on the matter. There is no middle ground between the two: either the assessor adopts one mode or the other. The advantage of assessment in the prescriptive mode is that it makes for highly commensurable judgements; the advantage of assessment in the expansive mode is that it allows the best and fullest estimation of what a person knows or can do.

Of course educational assessment is already replete with any number of distinctions and polarities. For example, we routinely distinguish between criterion referencing and norm referencing, between reductionist and holistic assessment, between standardised tests and non-standardised tests, between standardised tests and teacher assessment, between objective and subjective marking, and so on and so forth. Elsewhere (Lum, 2012a) I have been at pains to show that the distinction at issue here is far more fundamental in the sense that it replicates a natural bifurcation in the facility we have to make sense of other human beings. And it is clearly a distinction that is essential to the business of teaching. We might think of the teacher who just *knows* that her pupil does not understand despite the fact that he is able to answer her question correctly, or conversely that he *does* understand despite not answering correctly. The distinction is implicated in the language we use to describe people’s capabilities; it is there in the subtle shift of emphasis between ‘can *do*’ and ‘*can* do’, the former indicating successful performance, the latter suggesting

the possession of an ability perhaps even in the absence of such a performance. We invariably rationalise the difference in ontological terms, in terms of ‘inner states’ as against ‘outward behaviour’ – which explains the accusation of behaviourism positioned against CBET – however this is illusory for the distinction is really about how we treat the evidence available to us (see Lum, 2013). So the choice is not between objective, measurable behaviours on the one hand and tentative inferences about inner states on the other. The choice is between judgements which are restricted to prescribed evidence and judgements which are based on the widest consideration of available evidence.

Now there are several points to be derived from this. First, it seems clear that with any assessment intended to determine what a person knows or what they can do, for reasons of reliability a determinate choice *must* be made as to that assessment’s intended mode because, as the Right/Wrong Scenario illustrates, what counts as ‘correct’ hangs on this. Merely characterising a procedure as ‘competence-based’ or ‘outcomes-based’ serves to obfuscate the crucial issue of which mode is meant to be applied. Second, we can now see that the ‘basic worry’ which prompts the charge of behaviourism against the N/SVQ should more properly be characterised, first, as an implicit recognition that an assessor operating in the prescriptive mode would be required to record a performance as successful even in the face of countervailing evidence, and second, that a vocational curriculum would stand to be profoundly impoverished were it to be conceived *just* in terms of meeting the requirements of assessment in the prescriptive mode. Indeed, contrary to our initial depiction, we can now see that there *is* a sense in which teaching to the test *can* be problematic in competence-based education and training: it is problematic to the extent that behaviours are purposely fostered in learners such as to obtain a positive outcome with respect to assessment in the prescriptive mode but which would fail to satisfy an assessor employing judgements of significance in the expansive mode. In other words, a candidate could be trained to perform a task or give answers by rote, as it were, without having the requisite understanding. By applying judgements of identity in the prescriptive mode an assessor could legitimately accept this as evidence of competence even in the face of countervailing evidence – as illustrated with the Right/Wrong Scenario.

Given that the present system would seem to be methodologically insensitive to the distinction I am making here it is impossible to know for certain exactly which mode might be used in any given instance; this is something that could only be determined empirically. Certainly there is little comfort in the thought that designers, assessors and verifiers might unwittingly employ different modes and possibly even vacillate between modes without even being aware of it. There is, however, good reason to suppose that many current procedures will tend to gravitate towards assessment in the prescriptive mode because this is the mode that best accommodates the kind of overarching bureaucratic control that characterises current arrangements. First, as we have already noted, the prescriptive mode allows for greater commensurability of judgements. Second, the prescriptive mode sits particularly well with the bureaucratic insistence on precise statements, evident in the following proclamation from the then Director of the National Council for Vocational Qualifications:

For accurate communication of the outcomes of competence and attainment, a precision in the use of language in such statements will need to be established, approaching that of a science. The overall model stands or falls on how effectively we can state competence and attainment.
(Jessup, 1991, p. 134)

Judgements in the expansive mode are simply not amenable to this kind of ‘precision’ because it is not possible to specify in advance all the evidence that might be deemed relevant in any given instance. The difficulty with assessment in the prescriptive mode, if this is the mode which predominates in the N/SVQ system, is that it is simply incapable of providing a sufficient indication of a person’s capabilities.

To understand why, it is salutary to reflect on a not altogether dissimilar distinction to be found in a rather different context: that of the law. Of significance here is the fact that whilst minor offences might be prosecuted in the first instance solely on the basis of whether a person has or has not demonstrated the specified behaviour – parking on a yellow line for instance – more serious offences always require the court to consider not just the guilty act (*actus reus*) but also the guilty mind (*mens rea*). Whilst the first is simply a matter of determining whether the defendant did or did not do the thing in question, the second requires that the court take into account all available evidence and arrive at a judgement on the basis of weighing and assessing the significance of that evidence. In other words, whilst minor prosecutions use procedures akin to

the prescriptive mode, serious prosecutions invariably involve procedures akin to the expansive mode. Indeed, it is not without significance that even with minor offences such as parking offences, there will usually be some avenue by which account can be taken of wider circumstances, some means by which a judgement can be made which takes into account countervailing evidence. It seems that the law implicitly acknowledges something that escapes notice in current arrangements for educational assessment: when it is vital to arrive at the best possible judgement it is not sufficient merely to apply judgements of identity, rather, we must use a form of judgement which is capable of taking into account all available and relevant evidence.

To the extent that current procedures gravitate towards judgements of identity in the prescriptive mode it seems clear that they *cannot* fulfil the function of providing a suitable and sufficient indication of a person's capabilities. And this brings us to another crucial point of divergence between the National College Certificate and the N/SVQ. National College assessment was designed to be 'task focused' but 'understanding oriented' meaning that although all the procedures were aimed at proficiency in the specified tasks the thrust of assessment was concentrated on ensuring that workers had an appropriate conceptual grasp of the systems and the equipment on which they were to be deployed. To this end tests were focused on their ability to perform the requisite tasks in specially configured simulated settings which, unlike workplace settings, could be purposefully designed to elicit the widest range of evidence practicable so as to test the candidate's understanding to the full. Tests were also used to verify the effectiveness of provision, that is, the extent to which an individual had learnt what they were meant to learn. Of course both these uses of assessment are an anathema to advocates of the competence approach who insist that assessment must be 'authentic' – that is, restricted to the performance of real tasks, preferably in the workplace, and concerned only with 'outcomes'. In contrast to the N/SVQ conception of competence, the model of competence which underpinned the National College approach was focused not on verifying tightly prescribed performances but on cultivating and corroborating the kind of understanding required for competence proper. The difference was one immediately recognised by companies opting for the National College Certificate in preference to the N/SVQ.

This brings us to what for many employers and employees is another crucially important function of a vocational qualification and one that would seem to have been overlooked by designers of the current system.

(F3) A qualification should assist employers fulfil the statutory legal requirements for competence under health and safety legislation.

It is a surprisingly neglected fact that the introduction of so-called ‘competence’ approaches in education coincided approximately with the introduction of the term in an entirely different but not unconnected context, viz. the legal requirements for health and safety. Since 1974 there has been a blanket duty placed on UK employers under the Health and Safety at Work, etc. Act to provide ‘such information, instruction, training and supervision as is necessary to ensure, so far as is reasonably practicable, the health and safety at work of his employees’ (§2. para. 2c). But from the late 1980s onwards a number of statutory regulations were introduced which make it a criminal offence for employees to be allowed to do certain types of work unless they can be shown to be competent. Regulation 16 of the Electricity at Work Regulations (HSE, 1989) is a case in point: the ‘duty holder’ must be able to show that any employee carrying out electrical work is ‘*competent* to prevent danger and injury’ (*ibid*, p. 43; my emphasis) by virtue of possessing relevant ‘technical knowledge or experience’. The regulation goes on to state:

The scope of ‘technical knowledge or experience’ may include:

- (a) adequate knowledge of electricity;
- (b) adequate experience of electrical work;
- (c) adequate understanding of the system to be worked on and practical experience of that class of system;
- (d) understanding of the hazards which may arise during the work and the precautions which need to be taken;
- (e) ability to recognise at all times whether it is safe for work to continue.

(HSE, 2011, p. 43)

In other words the ‘duty holder’ – in every likelihood, a senior engineering manager – can be prosecuted unless he or she can demonstrate that they ‘took all reasonable steps and exercised all due diligence’ (*ibid*. p. 44) to ensure that those carrying out electrical work are ‘competent’. The crime consists merely in allowing non-competent staff to do the work – there does not have to be a

death or injury for a prosecution to result. What many employers found astonishing – when eventually the discrepancy became clear to them – was that our national system of *competence* assessment not only offered no guarantee of meeting the legal requirements for competence, but it could be seen to be methodologically at odds with them. In the event of a prosecution the duty holder would be required to show that he or she had taken ‘all reasonable steps and exercised all due diligence’ to make the best possible judgement about a worker’s competence based on the widest range of available evidence - in other words, *their* judgement would need to be characteristic of judgement in the expansive mode. Moreover, as can be seen from the above extract, the legal concept of competence is centred on ‘knowledge’, ‘experience’, ‘understanding’, ‘ability to recognise’ – *not* performance evidence. At first site it might appear that there is some commonality in the emphasis on ‘experience’. Yet even here there is a fundamental divergence. For the competence strategist, experience is treated as an ‘output’, any instance of a successful performance being assumed to *demonstrate* competence. The duty holder, however, is required to treat experience as an ‘input’, assessing the sum total of the worker’s experience – which may or may not be sufficient all things considered – as just *part* of the evidence upon which an expansive mode judgement would be made. This difference was of some import as regards the National College ‘consolidation scheme’ which required newly trained workers to record the implementation of newly acquired skills in the workplace. The process might easily have been confused with the use of log-books in the N/SVQ system. The difference was that the entries logged in the National College’s consolidation scheme formed just *part* of a carefully structured and documented process of guiding the implementation of new skills, recording evidence of experience that could be used to justify the gradual withdrawal of supervision. The N/SVQ’s purposeful disregard of ‘inputs’ is similarly problematic. A court of law *would* be interested in the nature and quality of educational provision and since merely attending a programme of learning is no proof of learning actually taking place, a court would also be interested in the steps taken to assess what had been learnt.

These, then, are some of the reasons why our system of vocational qualifications falls short of fulfilling what are arguably the most basic and most vital functions of a vocational qualification system. One can only begin to contemplate the effects these underlying difficulties might have on the structural and institutional features of the UK’s system of vocational education and training.

There is certainly cause to suspect that at least some of those features are the symptoms rather than the causes of our difficulties.

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